

Vehicle seat and cabriolet vehicle with such a vehicle seat

The invention relates to a vehicle seat with a backrest, in particular functioning as a rear vehicle seat, with a seat element provided at the free
5 end of the backrest, and a cabriolet vehicle with such a vehicle seat.

Such vehicle seats and vehicles with such vehicle seats are generally known. Vehicle seats are further known in which a seat element provided at the free end of the backrest acts as a headrest.

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There is known, from DE 37 32 562, a cabriolet vehicle with a roll bar which can be moved out of its rest position in the area of a rear parcel shelf behind the back seats, i.e. the rear seats, by means of a pivoting motion into its active position. A hinge bearing for such a pivoting bearing
15 of a roll bar is known from DE 44 22 550. When the roll bar undergoes a pivoting movement which cannot be influenced by the vehicle driver due to automatic triggering in the case of corresponding exceptional circumstances, such as overturning of the vehicle, for example, it is not possible to rule out human injury in those cases where a body part, such
20 as the head or an arm, for example, finds itself in the pivot area.

To avoid this risk of injury, DE 39 03 459 suggests a roll bar which, in its rest position, is arranged in the backrest of the seat or in a headrest connected to the backrest and which is able to be conveyed into its active
25 position by a translative movement.

A cabriolet vehicle is known from DE 198 03 398 in which a roll bar, which is also able to be conveyed into its active position or protective position by means of a translative movement, is provided behind the headrests of
30 the back seats as protection against rollover.

A device providing protection against rollover, which has a roll bar arranged behind the respective vehicle seat and in which a headrest pad is attached to the roll bar, is known from DE 38 22 461.

- 5 The invention consists in specifying a vehicle seat or a vehicle with such a vehicle seat, in which the function of protecting against rollover and also the function of a headrest are assumed by the same seat element and in which the seat element is designed in a foldable manner in order to improve rear viewing.

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The invention is achieved with a vehicle seat, in particular functioning as a back vehicle seat (rear seat/rear seat unit), with a seat element provided at the free end of the backrest, in which the seat element is pivotably linked to a backrest structure of the vehicle seat and the seat element
15 acts, at the same time, as a headrest and as protection against rollover.

- The combination of the headrest and protection-against-rollover functionalities in one foldable seat element and its connection to the backrest structure has, to the best of the applicant's knowledge, hitherto
20 not yet been given consideration. The invention makes possible inexpensive and efficient occupant protection. In contrast to the case of rotationally pivotable roll bars, the seat element according to the invention does not require any additional space in the area of the rear parcel shelf or the like. In contrast to the case of the translatively movable
25 roll bar, the seat element according to the invention is always in the protection position when the vehicle seat is occupied, such that the protection function is independent of a correct and sufficiently rapid triggering, as is required with a movable roll bar. The aggregation of several functionalities in the seat element furthermore leads to
30 simplification of manufacture. The seat element is furthermore thus also able to be simply and inexpensively produced because no complex

mobility is required to achieve the protection position.

Advantageous designs of the invention form the subject-matter of the subclaims.

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The seat element is particularly well suited to fulfilling its function as protection against rollover when it has a substantially U-shaped structural element. Such a longitudinally stretched U with two limbs has proven to be particularly well-suited to taking up and diverting the forces which are
10 to be anticipated when a vehicle overturns.

The backrest structure preferably includes at least two bracing tubes which are parallel to each other, whereby each free end, i.e. each limb of the structural element, is associated with one of the bracing tubes
15 respectively of the backrest structure such that a force diversion from the structural element to the bracing tubes of the backrest structure is possible.

For optimal diversion of force, it is further preferably provided that the
20 backrest structure is joined to the structure side in respect of the vehicle, in particular by the backrest structure being connected to a bodysell rear wall of the vehicle. The force is thus diverted onto structural parts of the motor vehicle, in particular onto the bodysell rear wall.

25 The pivotable seat element can preferably be locked into an upright position and into a substantially horizontal position. The upright position is obviously chosen as soon as the respective seat is occupied. The horizontal position can be chosen when the respective seat is unoccupied. In the horizontal position, the blocking of the vehicle driver's
30 rear view is rendered completely impossible, or at least impossible to the largest possible extent, by means of the folded-down seat element.

Furthermore, there arises in the side view, in the case of cabriolet vehicles, an optically pleasing line if neither a headrest nor a roll bar clearly protrudes beyond the window parapet line. This is guaranteed when the seat element is folded-down.

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When the pivotable seat element is pivoted, in its substantially horizontal position, towards the vehicle interior space, the folded-down seat element does not take up any space in the area of a rear parcel shelf or soft top storage or the like. Furthermore, in the case of a "forwardly" foldable seat element, the vehicle driver can, if need be, reach the seat element from his position in the driver's seat and fold it down by means of a movement in his direction. The vehicle driver can thus react in the case of his view being impaired by an upright seat element and can also fold it down manually.

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In the following, an embodiment of the invention will be described in greater detail using the drawings. Corresponding objects or elements are provided with the same reference numbers in all figures.

20 The following are shown therein:

Fig. 1 a side view of a cabriolet vehicle with an upright seat element at the rear seat,

25 Fig. 2 a side view of a cabriolet vehicle with a folded-down seat element at the rear seat and

Fig. 3 and

30 Fig. 4 the rear seat as a component of a rear seat group, once with an upright seat element and once with a folded-down seat

element.

Fig. 1 shows a side view of a cabriolet vehicle 10, whereby a rear region of the vehicle 10 is depicted as a phantom view. A vehicle seat 11 is shown in the rear area. This includes a seat surface 12 and a backrest 13. At the free end of the backrest 13 there is provided a seat element 14 which acts at the same time as protection against rollover and as a headrest. In the interior of the seat element 14 there is provided, with regard to its function as protection against rollover, a substantially U-shaped structural element 15. With regard to the function of the seat element 14 as a headrest, it has, in a manner known per se, padding or foaming of the structural element 15.

A backrest structural element 16 is located in the interior of the backrest. The backrest structural element 16 is also referred to in an abbreviated form as backrest structure 16. The seat element 14 is linked to the backrest structure 16. The seat element 14 is thus pivotable or foldable. Furthermore, the seat element 14 is connected to the backrest structure 16 such that, in the case of an adverse event, a diversion, onto the backrest structure 16, of the forces which are applied to the structural element 15 of the seat element 14 is guaranteed. For the further diversion of the forces, it is provided that the backrest structure 16 is connected to structural parts of the vehicle 10, for example to a bodyshell rear wall.

Fig. 2 shows substantially the same depiction as Fig. 1. In contrast to Fig. 1, the foldable seat element 14 is folded down towards the vehicle interior space. The folded-down seat element 14 barely protrudes beyond the window parapet line of the vehicle 10, so that a particularly pleasing side view of the cabriolet vehicle 10 results.

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Fig. 3 and Fig. 4 show the vehicle seat 11 as a rear seat and as a

component of a rear seat group, once with an upright seat element and once with a folded-down seat element 14.

In Fig. 3, the vehicle seat with the upright seat element 14 is shown. The
5 backrest 13 is depicted as a phantom view such that the backrest structural element 16 is visible. The backrest structural element 16 includes two parallel bracing tubes 17 which are connected to each other by cross struts 18. The structural element 15 in the form of an inverted "U" has a limb 19 at each of its free ends. The backrest structure 16 and
10 the structural element 15 are oriented in respect of each other, such that the limbs 19 are situated on the same line or at least on substantially the same line as the bracing tubes 17 of the backrest structure 16. In this manner, an optimal diversion of any force applied to the structural element 15 into the backrest structure 16 is possible. For the further
15 diversion of the force, the backrest structure 16 is connected, in a non-depicted manner, to bearing elements of the vehicle, for example a bodyshell rear wall.

Fig. 4 shows substantially the same depiction as Fig. 3. In contrast to Fig.
20 3, the foldable seat element 14 is folded down towards the vehicle interior space. In order to bring about the foldability of the seat element 14, the seat element 14 is linked to the backrest structure in a manner which is not depicted in greater detail. The linking includes, for example, an axle around which the folding or pivoting movement occurs, and means, not
25 depicted in greater detail, for locking the seat element 14 at least in the upright and/or in the folded-down position. Furthermore, means (also not depicted), for example a spring or the like, can be provided to move the seat element 14 into the upright or the folded-down position when the locking is released.

List of reference numbers

	10	Cabriolet vehicle
	11	Vehicle seat
	12	Seat surface
5	13	Backrest
	14	Seat element
	15	Structural element
	16	Backrest structure, backrest structural element
	17	Bracing tube
10	18	Cross strut
	19	Limb